

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.

Paper No. 54

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte NASAHIRO SUZUKI,
HISATOSHI AKITA,
and NOZOMU TAKATA

Appeal No. 1999-2087
Application No. 08/595,449

HEARD: NOVEMBER 13, 2000

Before CALVERT, COHEN, and GONZALES, Administrative Patent Judges.

GONZALES, Administrative Patent Judge.

DECISION ON APPEAL

This is an appeal from the examiner's final rejection of claims 1, 3 through 5, 16 through 19, 21 and 23 through 28. Claims 7 through 15, 20 and 22 have been allowed. Claims 2 and 6 have been canceled. At pages 2 and 8 of the answer

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(Paper No. 40), the examiner has indicated that the rejections of claims 21, 23 through 25, 27 and 28 have been withdrawn and that claims 21 and 23 through 25 are now allowed and that claims 27 and 28 contain allowable subject matter. During the telephonic oral hearing, counsel for the appellants withdrew the appeal with respect to claims 16, 18 and 26. Accordingly, the appeal with respect to claims 16, 18, 21 and 23 through 28 is dismissed. Claims 1, 3 through 5, 17 and 19 remain on appeal.

We AFFIRM.

The subject matter on appeal is directed to an electrically power assisted bicycle. An understanding of the invention can be derived from a reading of exemplary claim 1, which appears in the appendix to the brief (Paper No. 39).

The prior art references of record relied upon by the examiner in rejecting the appealed claims are:

Davidson et al. (Davidson)	4,085,814	Apr. 25, 1978
Goldenfeld	4,637,274	Jan. 20, 1987
Murphy et al. (Murphy)	5,242,028	Sep. 07, 1993
Sugiura et al. (JA 60-7995)	60-7995	Mar. 19, 1985 ¹

¹In determining the teachings of JA 60-7995, we will rely on the translation provided by the PTO. A copy of the
(continued...)

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(Japanese Patent)

The appealed claims stand finally rejected under 35
U.S.C.

§ 103(a) on the following grounds:

I. Claims 1, 3 through 5, 17 and 19, unpatentable over
Murphy in view of JA 60-7995.

II. Claims 17 and 19, unpatentable over Davidson in view
of Goldenfeld.

The full text of the examiner's rejections and response
to the arguments presented by the appellants appears in the
answer, while the complete statement of the appellants'
arguments can be found in the brief.

OPINION

In reaching our decision in this appeal, we have given
careful consideration to the appellants' specification and
claims, to the applied prior art references, and to the
respective positions articulated by the appellants and the

¹(...continued)
translation is attached for the appellants' convenience. Any
reference in this decision to JA 60-7995 by page is to this
translation.

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examiner. As a consequence of our review, we have made the determinations which follow.

Rejection I

With respect to Rejection I, the appellants, on page 4 of the brief, have provided two groupings of claims, i.e., Group 1: claims 1, 17 and 19; and Group 2: claims 3 through 5. Thus, in accordance with 37 C.F.R. § 1.192(c)(7), we have selected claims 1 and 3 as being representative of the respective claim groupings and will decide the appeal with respect to Rejection I on the basis of those claims alone.

Claims 1, 17 and 19

After considering the collective teachings of Murphy and JA 60-7995, we must agree with the examiner that the invention set forth in claims 1, 17 and 19 would have been obvious to one of ordinary skill in the art at the time of the appellants' invention.

Claim 1 calls for an electrically power assisted bicycle comprising, inter alia, a drive coupling a pedal assembly to a rear wheel for manual driving of the rear wheel, "an electrical motor and a transmission for transferring motive

power from said electrical motor to said drive disposed adjacent to and longitudinally entirely on the forward side"² of the pedal assembly crank axis and battery means "disposed adjacent to and longitudinally entirely on the rear side" of the pedal assembly crank axis and "substantially forwardly of the rotational axis" of the rear wheel of the bicycle.

We note that the language requiring the electrical motor and the transmission to be disposed adjacent to and longitudinally entirely on the forward side of the pedal assembly crank axis was added to claim 1 by an amendment filed August 19, 1997 (Paper No. 29). Prior to this amendment claim 1 only required that the motor be disposed adjacent to and longitudinally entirely on the forward side of a pedal assembly crank axis. For purposes of our review, we construe the term "transmission" to include the pinion shaft 77, as well as disclosed elements connecting the pinion shaft 77 to the motor output shaft 63, but not the ring gear 83 or the housing 32 in which the pinion shaft and ring gear are mounted, since the gear 83 and the housing 32 are not entirely

² We do not find antecedent basis in the specification for this language, as required by 37 C.F.R. § 1.75(d)(1).

on the forward side of the crank axis. See the appellants' Figure 6. We understand "forward side" to be the direction the bicycle rider would normally face while pedaling.

The examiner describes Murphy as disclosing an electrically power assisted bicycle comprising an electric motor 10 longitudinally disposed along the down tube of the bicycle frame and on the forward side of a pedal assembly crank axis. See answer, p. 3. Our review of Murphy reveals that the reference also discloses a motor gear box (unnumbered) having a drive shaft 12 extending from the gear box with the shaft 12 journaled through a one-way clutch 16 to a drive sprocket 20. See col. 3, ll. 36-50. As shown in Figures 1 and 4 of Murphy, motor 10, gearbox, shaft 12, one-way clutch 16 and sprocket 20 are all disposed adjacent to and entirely on the forward side of the pedal assembly crank axis.

The examiner acknowledges that Murphy fails to disclose the location of the battery, but cites the JA 60-7995 reference as teaching an electrically power assisted bicycle having a battery disposed adjacent to and longitudinally entirely on the rear side of a pedal assembly crank axis and

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substantially forwardly of the rotational axis of the rear wheel of the bicycle. See answer, p. 4. Our review of the reference reveals that the reference also discloses a battery-case 7 for storing the battery in a compact and secure manner in the space defined by the standing pipe 1, main pipe 2, sheet stays 3 and splash guard 4 and a locking device 11 permitting the battery case to be freely removed when necessary to change or recharge the battery. See p. 2.

Based on the combined teachings of the applied prior art, the examiner determined (answer, p. 4) that

[i]t would have been obvious to one of ordinary skill in the art at the time of the invention to provide the bicycle of Murphy with a battery means positioned along the seat tube and rearward of the seat tube, in view of Japanese Patent No. 60-7995, in order to provide a suitable location for mounting the batteries which are necessary for operation of an electrically powered bicycle.

In applying the test for obviousness,³ we reach the conclusion that it would have been obvious to one having ordinary skill in the art, from a combined assessment of the Murphy and JA 60-7995 teachings, to provide the electrically power assisted bicycle of Murphy with a battery case for storing the batteries necessary to power Murphy's electric motor and with a locking device positioned in the space defined by the seat pillar and splash guard as taught by JA 60-7995. In our view, one of ordinary skill in the art would have been motivated to so modify the bicycle of Murphy in order to obtain the advantages of the battery case and locking device specifically disclosed in the JA 60-7995 reference, namely, a compact and secure battery storage arrangement which also provides easy access to the batteries for replacement or recharging.

³ The test for obviousness is what the combined teachings of the references would have suggested to one of ordinary skill in the art. See In re Young, 927 F.2d 588, 591, 18 USPQ2d 1089, 1091 (Fed. Cir. 1991) and In re Keller, 642 F.2d 413, 425, 208 USPQ 871, 881 (CCPA 1981).

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The arguments advanced in the brief are unpersuasive for the following reasons.

First, the appellants assert that a person of ordinary skill would not have used the battery position of the JA 60-7995 reference without also using the motor position shown by the reference. See brief, p. 5. We do not perceive and the appellants have not identified any teaching or suggestion in the JA 60-7995 reference that the advantages of the battery case and locking device specifically disclosed therein are dependent on the positioning of the electric motor on the bicycle frame. Thus, we find that the appellants' assertion has no factual basis in the record.

The appellants also argue that Murphy expresses a desire to have the construction appear as closely as possible to a conventional bicycle so that the arrangement can be utilized with a conventional bicycle frame and that the modification proposed by the examiner would defeat this basic objective of the Murphy reference. See brief, pp. 5 and 6. The examiner's response is that the JA 60-7995 reference does show a conventional bicycle frame. See answer, p. 6. We agree. In our opinion, the bicycle frame illustrated in Figure 1 of the

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JA 60-7995 reference resembles a conventional bicycle frame to the same extent as does the bicycle frame illustrated in the appellants' Figure 1 or in Murphy's Figure 4.

Finally, the appellants argue that the examiner's suggested rearrangement of the structure is not based on the teachings of the references. We do not share this view. As articulated, supra, we determine that the evidence of obviousness would have certainly provided ample incentive or motivation to one of ordinary skill in the art for combining the applied references without resort to the appellants' disclosure.

For the reasons set forth above, the rejection of claim 1 under 35 U.S.C. § 103 will be sustained. Since claims 17 and 19 stand or fall with claim 1, supra, we will also sustain the 35 U.S.C. § 103 rejection of those claims.

Claims 3 through 5

We also agree with the examiner that, in view of the combined teachings of Murphy and the JA 60-7995 reference, the invention set forth in claims 3 through 5 would have been

obvious to one of ordinary skill in the art at the time of the appellants' invention.

With respect to claim 3, the appellants argue that the combination of Murphy and JA 60-7995 fails to teach or suggest that "the electric motor has an output shaft extending at an inclined angle to both a vertical plane and horizontal [sic, plane] and extending in an upward direction from the crank axis and forwardly therefrom for driving the transmission." In support of this argument, the appellants describe the shaft 12 of Murphy (see Fig. 1) as "the electric motor output shaft" and point out that shaft 12 is not perpendicular to the axis of the crankshaft.

The appellants' argument is not well taken. While it is true that Murphy refers to the shaft 12 as the motor shaft (e.g., see col. 3, l. 38), it is clear upon consideration of Murphy's entire disclosure that the shaft 12 is actually the output shaft from the gearbox of the motor 10. See col. 3, l. 39. In essence, the shaft 12 corresponds to the appellants' disclosed drive pinion 77, i.e., the shaft 12 is the output shaft of the transmission or gearbox. Thus, we agree with the examiner's analysis of Murphy, which is that Murphy inherently

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discloses a central motor output shaft coaxial with the axis of the cylindrical motor casing. See answer, p. 7.

For the reasons set forth above, the rejection of claim 3 under 35 U.S.C. § 103 will be sustained. Since claims 4 and 5 stand or fall with claim 3, supra, we will also sustain the 35 U.S.C. § 103 rejection of those claims.

Rejection II

With respect to Rejection II, the appellants, on page 4 of the brief, have indicated that claims 17 and 19 stand or fall as a group. Thus, in accordance with 37 C.F.R. § 1.192(c)(7), we have selected claim 17 as being representative of the claim grouping and will decide the appeal with respect to Rejection II on the basis of that claim alone.

After considering the collective teachings of Davidson and Goldenfeld, we must agree with the examiner that the invention set forth in claims 17 and 19 would have been obvious to one of ordinary skill in the art at the time of the appellants' invention.

Claim 17 calls for an electrically power assisted bicycle comprising, inter alia, a drive coupling a pedal assembly to a rear wheel for manual driving of the rear wheel, "an electrical motor extending longitudinally along one side of one of said down and seat pipes and entirely on one side" of the pedal assembly crank axis, battery means "extending longitudinally along the one side of the other of said down and seat pipes and entirely on the other side of said crank axis" and "wherein the one of the electrical motor and battery

means that is disposed longitudinally along the down pipe lies below and extends generally parallel to the down pipe."

Davidson shows an electrically power assisted bicycle comprising, inter alia, chain wheel 12, drive chain 26 and sprocket 25 coupling a pedal assembly to a rear wheel for manual driving of the rear wheel, an electric motor 13 extending longitudinally along one side of the seat pipe and entirely on one side of the pedal assembly crank axis and an electric storage battery 27 extending longitudinally, at least to some degree, along one side of the down pipe and entirely on the other side of the crank axis. The examiner describes Davidson as failing to show the battery mounted below and parallel to the down tube and cites Goldenfeld for a teaching of a battery 16 mounted parallel to the down tube. See answer, p. 5. In addition, the examiner describes Goldenfeld as suggesting that the battery may be hung below the frame. Id.

Based on the combined teachings of the applied prior art, the examiner determined (id.) that

[i]t would have been obvious to a skilled artisan to mount the Davidson battery parallel to and below the frame down tube, as taught by Goldenfeld, in order

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to better conform the battery case to the shape of the bicycle frame to save space.

We agree. While the appellants correctly point out that Goldenfeld shows battery 16 mounted above the down tube 4, Goldenfeld specifically teaches that the battery may be "advantageously mounted on the down tube 4 or suspended from the cross bar 18, but could be accommodated whenever [sic] convenient." See col. 3, ll. 36-38. We are of the opinion that one skilled in this art would, on reading the Goldenfeld patent, at once envisage each possible orientation of battery 16 on down tube 4 and, thus, that Goldenfeld is at least suggestive of the claimed orientation. See In re Petering, 301 F.2d 676, 682, 133 USPQ 275, 280 (CCPA 1962).

The appellants argue that the Davidson battery could not be mounted below the down pipe without the electrolyte running out. We are not persuaded by this argument because, as pointed out by the examiner (answer, p. 7), Goldenfeld teaches an electrically power assisted bicycle wherein the electric motor is powered by a rechargeable NiCd battery or a dry lead-

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acid battery (see col. 5, ll. 49, 50) which is clearly capable of operating in the claimed orientation.

Finally, the appellants argue that the examiner's suggested rearrangement of the structure is not based on the teachings of the references. We do not share this view. In our opinion, the motivation on the part of one having ordinary skill in the art for employing the battery orientation suggested by Goldenfeld in the electrically power assisted bicycle taught by Davidson would have been to obtain the self-evident advantages thereof while avoiding the disadvantages of a storage battery and orientation disclosed by Davidson.

For the reasons set forth above, the rejection of claim 17 under 35 U.S.C. § 103 will be sustained. Since claim 19 stands or falls with claim 17, supra, we will also sustain the 35 U.S.C. § 103 rejection of claim 19.

CONCLUSION

To summarize, the decision of the examiner to reject claims 1, 3 through 5, 17 and 19 under 35 U.S.C. § 103 as being unpatentable over Murphy in view of JA 60-7995 is

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affirmed; the decision of the examiner to reject claims 17 and
19 under

35 U.S.C. § 103 as being unpatentable over Davidson in view of
Goldenfeld is affirmed.

The decision of the examiner is affirmed.

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No time period for taking any subsequent action in
connection with this appeal may be extended under 37 C.F.R.
§ 1.136(a).

AFFIRMED

IAN A. CALVERT)	
Administrative Patent Judge)	
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)	BOARD OF PATENT
IRWIN CHARLES COHEN)	APPEALS
Administrative Patent Judge)	AND
)	INTERFERENCES
)	
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)	
JOHN F. GONZALES)	
Administrative Patent Judge)	

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